SIMPLIFIED WIND DEFLECTOR FOR VEHICLE ROOF CLOSURE

BACKGROUND OF THE INVENTION

This application relates to a wind deflector for a vehicle roof closure wherein the wind deflector is moved between extended and stowed position based upon movement of the closure member.

Modern vehicles are often provided with a closure in the roof which is movable between an open and closed position. These closures are typically known as moon roofs or sunroofs. The closures are selectively moved between the open position at which they open an aperture in the ceiling, or to the closed position at which they close the aperture.

When the closure is the open position, a good deal of wind may move into the cab of the vehicle. Since this wind is often directed at the vehicle occupants, the closures are often provided with wind deflectors forward of the aperture. The wind deflectors serve to direct wind around the wind deflector, such that it is not directed at the occupants of the vehicle.

However, the wind deflectors have also needed to be moved between a stowed position when the closure is closed, and to an extended position when the closure is opened. The movement has presented design challenges.

Known wind deflectors have been relatively complex, and have typically relied upon separate drive members to move between the extended and stowed position. The prior art wind deflectors are thus quite complex.

SUMMARY OF THE INVENTION

In a disclosed embodiment of this invention, a wind deflector is positioned forward in an aperture in a vehicle roof. The wind deflector is biased toward one of a stowed or open position, and moved to the other upon movement of the

closure member. In a preferred embodiment, the wind deflector is biased to an extended position at which a deflector portion extends upwardly of the aperture. A spring biases the deflector to this position. The closure member moves against the wind deflector to force it to its stowed position.

Preferably, the wind deflector is mounted within a mount portion such that it has a stop member which stops further movement of the wind deflector when the wind deflector is biased to its extended position. In a preferred embodiment, this stop is provided with a tab extending downwardly from the wind deflector which contacts a portion of the mount. The stop prevents further movement of the wind deflector. In a most preferred embodiment of this invention, the wind deflector is pivotable about a pivot axis, and spring biased about the pivot axis to its extended position. The stop prevents further movement of the wind deflector. The closure member contacts the wind deflector and acts in opposition to the spring bias to force the wind deflector to its stowed position.

These and other features of the present invention can be best understood from the following specification and drawings, the following of which is a brief description.

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BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 shows a vehicle roof with a wind deflector in an extended position.

Figure 2 shows the wind deflector of Figure 1 having been moved to the stowed position.

Figure 3 is a rear view of the inventive wind deflector.

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DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

A vehicle roof 20 is illustrated in Figure 1 having a selectively movable closure 22. As is known, a vehicle operator can selectively move the closure member 22 between open and closed positions. At the closed position, the closure member 22 is positioned in a sealing relationship with a seal 24 adjacent a forward end of an aperture 25.

As shown, a wind deflector mount 26 is positioned adjacent a forward end of the aperture 25. A pivot axis 28 pivotally mounts a spring 30. Spring 30 has a first finger 32, a ring portion 34 mounted about the pivot axis 28 and a second finger 36. First finger 32 abuts a surface of a wind deflector 38. The wind deflector 38 has an aerodynamic front surface 40 which directs wind away from aperture 25 when in its extended position such as illustrated in Figure 1. A rear stop portion 42 abuts a rear portion of the mount 26 in this position. The spring 30 biases the wind deflector 38 to the position illustrated in Figure 1. The stop 42 prevents further rotational movement of the wind deflector 38 about the axis 28, as will be explained below.

As can be seen in Figure 2, when the closure member 22 is moved forwardly to its closed position, it contacts the wind deflector 28 and forces it against the force of the spring 32 to move to its stowed position. In the stowed position, the wind deflector 38 has pivoted about the pivot axis 28. As shown in Figure 2, the wind deflector is now stowed. The present invention thus provides a very simple wind deflector structure which does not require a separate motor, or elaborate mounting structure.

Figure 3 is a rear view of the wind deflector 38. Pivot arms 50 from deflector are mounted in the mount 26 to define the pivot axis. Ring portion 34 of

spring 30 is mounted on arms 50. There may be springs 30 at each lateral side, although there may be a single spring. Also, the spring could be mounted in the center of the wind deflector. As can be seen, the stop 42 abuts a lower surface 44 of the mount 26. As can be appreciated, the spring fingers 32 and 36 abut respective surfaces on the wind deflector 38, and mount 26, as illustrated.

In summary, a very simple wind deflector movement structure is disclosed. The present invention greatly simplifies the mounting and movement of the wind deflector structures.

A preferred embodiment has been disclosed; however, a worker of ordinary skill in this art would recognize that modifications would come within the scope of this invention. For that reason, the following claims should be studied to determine the true scope and content of this invention.